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Growing the Art Image and Visual Literacy Garden: The Journey to Create a Practical Guide for Student Employees

Lael J. Ensor

Johns Hopkins University, lensor@jhu.edu

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Abstract

Expanding upon my poster titled "Art Instead of Just Images: Training Students to See Beyond the Screen" presented at the 2016 ARLIS/NA + VRA Third Joint Conference in Seattle, I detail the current journey of my project to create a practical guide for student employees to understand and manipulate images of art. In exploring this topic I discovered that there is a lack of literature specifically addressing looking at and manipulating digital surrogate images of works of art. Non-humanities student employees often lack the visual literacy and art historical skills to successfully edit and evaluate digital art images. This article seeks to find a way to effectively provide such students with a baseline of knowledge with the goal of both improving the quality and extent of their work and adding value to their own educational careers. In this article, I question both what constitutes a baseline of knowledge and what we actually want to teach student employees. What would a practical guide need to include and entail? Further investigation reveals a host of theoretical and ethical considerations that must be addressed for any such documentation to function.

Keywords

surrogate image, digital image, students, training, employee, visual literacy, art history, digital humanities, humanities, visual resources, art librarianship, ethics, art theory, visual culture, digitization, Photoshop, guide, pedagogy, visual analysis, materiality

Author Bio & Acknowledgements

Lael J. Ensor has been the Assistant Visual Resources Curator at the Johns Hopkins University Visual Resources Collection since late 2013. Before joining the VRC she worked for three years at the Milton S. Eisenhower Library. She graduated with a master's degree in Art History from the University of Delaware in 2009 with a focus on early medieval art and Islamic manuscripts.

Introduction

At the 2016 ARLIS/NA + VRA Third Joint Conference in Seattle, I presented a poster titled "Art Instead of Just Images: Training Students to See Beyond the Screen."[1] While working on my poster I realized that the full scope of the project I had set out for myself could potentially expand well past the destined horizon. What began as a simple practical question I had been turning over in my head for the last few years—how might we train student employees without humanities experience to look at works of art—became a host of theoretical and philosophical questions. During my exploration of the topic more and more puzzle pieces emerged, increasing the size of the finished puzzle.

Training non-humanities student employees in a visual resources setting is difficult as many have had little instruction in visual literacy. As Peter Felton states, "Living in an image-rich world, however, does not mean students (or faculty and administrators) naturally possess sophisticated visual literacy skills, just as continually listening to an iPod does not teach a person to critically analyze or create music."[2] Further, non-humanities students face many other specific challenges in visual resource centers and art libraries: a lack of discipline-specific knowledge and vocabulary, difficulty with formal analysis, a lack of understanding how art publications and other arts documentation function, and difficulty comprehending the multivalent nature of humanities research. Anna H. Perrault and Elizabeth S. Aversa note that with the humanities, "Such knowledge is not likely to consist of hard, identifiable facts such as formulas in chemistry, or population, and income statistics from census data, or the content of genetic matter."[3]

This elusive quality of the humanities can be difficult to translate into task-based work with images. However, I often wonder to what extent students' employment should go beyond repetitive tasks and seek to benefit the students throughout their education and future careers? Furthermore, an increased understanding of how we look at art has the ability not only to augment the personal reward for student workers, but also to enhance the scope and quality of their work and to increase the amount of time staff are able to spend on other projects.

Background of the Project

The initial seeds of this project may have begun to materialize for me during a ThinkCamp session at the Summer Educational Institute for Visual Resources and Image Management in 2014 when another attendee[4] spoke about her construction of a practicum for her library science graduate student employees. Although my student employees would generally not be aiming for a future in visual resources, I became enamored with the idea that their work in my Visual Resources Collection (VRC) could be tailored or presented in a way that would give them real world value. Aside from assigning a large variety of tasks with potentially transferable skills or ones with a measure of creativity, it seemed to me from the start that it would also make a world of difference to student employees if they understood what they were doing and why they were doing it. Not only would the quality of the work improve, but they would also take away a context and a way of looking that could be applied readily to their own passions and livelihoods.

Every time I encountered a student whose thought process was sensible but so fundamentally different from mine for lack of the same training and life experiences the seeds of this project sprouted more and more in the back of my mind. There was the student who mistook a bolt on a metal sculpture for dirt on a 35 mm slide. The student who questioned why in the world someone would want to retain irregular manuscript edges in an image—would not

everyone want it to be perfectly symmetrical? The student who simply could not see the differences between multiple Byzantine icons of the Nativity. The student who casually laughed at a medieval painting because it just looked "funny—why is the face like that? Did they make a mistake?" The student who, when looking at a contemporary art assemblage, asked, "What is this?" The many students who have never thought of the relationship between the image in a printed book and its digital surrogate, or its own surrogacy as an intermediary for a physical object existing in the ether of "somewhere else." Or all of the students who questioned why any of this matters. "Why am I doing this?"

Of course, those seedlings also continued to grow with each and every new student employee. I have consistently found myself without a roadmap for practical training, fumbling around in the dark trying to answer these big questions concisely—trying to explain how to look at images, how to understand representations, and how to view source materials, and struggling to give a piecemeal crash course in the history of art. While I have looked for other guides and authorities, I have not found anything that quite fits the bill—a guidebook for looking at and working with surrogate images. There are plenty of books and guides on the technical software skills, but the imaging guides tend to focus on the needs of a photographer or a graphic designer[5] while metadata creation and cataloging guides are too complex for the needed purpose. There are pieces on general visual literacy, as well as academic books aimed specifically at aspiring art historians with a focus on art historical theory. The former are too nonspecific and do not provide enough information, and the latter are too specific and provide too much information. Some of the best resources are geared towards a specific art historical field or the digitization efforts of a particular medium, but those resources are also not intended for this exact purpose,[6] and a collection of these materials does not come together to form a cohesive or concise whole.

While I have spent a lot of time thinking about these issues and how they relate to properly training student employees on the methods of editing images in Photoshop, it was not until the recent transition to Shared Shelf at Johns Hopkins University that my eyes were opened to an entirely new way of thinking about how student employees could more substantially contribute to our VRC and to their own futures by being better versed in the ways of looking at art. During our transition we took on the enormous task of evaluating each individual image in our collection for quality and necessity. This task involved checking for duplicates and image quality on our end and finding the appropriate images to compare in ARTstor. As the staff hours needed for the transfer ballooned, I wondered how our non-art historian student employees could help us. Why should they work on less pressing projects when we had deadlines looming for our transfer? How could they help? What was the baseline they would need to know to evaluate the images in question?

This last question has become one of the main questions of this entire project—what is the minimum amount of knowledge needed to be able to look at art images and perform related tasks effectively and efficiently? And how can such a thing be quantified? We know we do not have the time or resources to teach student employees everything about art history and visual literacy—nor should we in most cases[7]—but what should we teach? What absolutely does need to be a part of a practical training in looking at representations of art? To what extent could this training be less detail specific, but an aggregation and concise explanation of the considerations those steeped in visual literacy and art history may take for granted?

For the briefest of moments, I conceived of this project as a simple practical exercise— distill the basics, create a concrete guide, and have students work their merry way. But the more I researched the topic, the more I discovered its heavy philosophical and ethical components,

many of which would differ between institutions. Should one remove dirt and noise from an image if it would involve digital reconstruction of parts of the work of art? Should one attempt to match the color of the digital image to the color of the original work or to the color of the image's source material? It became immediately apparent that different institutions would answer questions like these in different ways, and the repeated whys from students to my own intended-to-be-succinct answers were drowning in theoretical rivers. My simple guide was developing into a long tract with sections on ethics, practicalities, and case studies. The concrete roadmap I had initially imagined had blossomed into many types of fruits and flowers.

Brief Literature Review

During the course of the poster project, I collected materials and resources to evaluate their relevance and utility in creating a practical guide. Most of these resources fell roughly into the various categories described in the table below in Figure 1.

Category	Utility	Example(s)
Visual Literacy[8]	Defining and explaining visual literacy and its expectations and required skills	"ACRL Visual Literacy Competency Standards for Higher Education." Association of College and Research Libraries, 2011. Available at http://www.ala.org/acrl/standards/visualliteracy Bamford, Anne. "The Visual Literacy White Paper." Adobe Systems Pty. Ltd., 2003. Available at http://wwwimages.adobe.com/content/dam/Adobe/en/education/pdfs/visual-literacy-wp.pdf
Art Librarianship[9]	Discussion of digital image surrogacy, art publications (types and functionality)	Jones, Lois Swan. *Art Information: Research Methods and Resources.* 3rd ed. Dubuque, Iowa: Kendall/Hunt, 1990. Pacey, Philip. *Art Library Manual: A Guide to Resources and Practice*. London and New York: R. R. Bowker in association with Art Libraries Society, 1977. Perrault, Anna H. and Elizabeth S. Aversa. *Information Resources in the Humanities and the Arts*. 6th ed. Santa Barbara, California: Libraries Unlimited, 2013.
Looking at Art[10]	Understanding the importance of looking and of material elements for expression. Relevant to practical application of digital image manipulation	Taylor, Joshua C. *Learning to Look: A Handbook for the Visual Arts*. Chicago: University of Chicago Press, 1971.
Field Specific Art History Books and Visual Culture	Side by side images useful for comparison purposes to show processes and techniques. Excellent for visual illustration of specific issues or art historical points necessary for understanding and using digital images	Brown, Michelle P. *Understanding Illuminated Manuscripts: A Guide to Technical Terms*. Malibu: J. Paul Getty Museum in association with the British Library, 1994. Goldman, Paul. *Looking at Prints, Drawings, and Watercolours: A Guide to Technical Terms*. London: British Museum, 1988. Ivins William M., Jr. *How Prints Look: Photographs with a Commentary*. Rev. ed. Boston: Beacon Press, 1987. Landau, David and Peter Parshall. *The Renaissance Print: 1470-1550*. New Haven: Yale University Press, 1994.

| *Digitization and Digital Surrogacy*[11] | Explains technical standards of digital image quality, addresses image surrogacy, discusses how to manipulate scans in relation to scanning source materials | Conway, Paul. "Building Meaning in Digitized Photographs." *Journal of the Chicago Colloquium on Digital Humanities and Computer Science* 1.1 (2009): 1-18.

 Conway, Paul. "Digital Transformations and the Archival Nature of Surrogates." *Archival Science* 15.1 (2015): 51-69.

 Frey, Franziska, and James Reilly. *Digital Imaging for Photographic Collections: Foundations for Technical Standards*. 2nd ed. Rochester, NY: Image Permanence Institute, 2006.

 Sassoon, Johanna. "Photographic Materiality in the Age of Digital Reproduction." In *Photographs Objects Histories: On the Materiality of Images*. Edited by Elizabeth Edwards and Janice Hart. London: Routledge, 2004. |

Figure 1. Brief Literature Review.

Proposed Criteria and Considerations

As a plethora of new questions and concerns arose from my literature review, it became clear to me that to move forward it would be essential to develop a set of necessary criteria— what do we want students to know? At what points do art history and visual literacy intersect, and how might those points be applied to task-based activities? I developed an inventory of considerations and categorized the issues into two main categories: understanding the sources of art images and understanding the images themselves.

Understanding the Sources of Art Images

How is art documented? This may seem like a simple question to those working in visual resources, but it is important to recognize that answers may not be readily apparent to the uninitiated. It is also imperative to distinguish the nuances that different types of art publications may incorporate (journal articles, textbooks, collected essays, monographs, exhibition catalogs, catalogues raisonnés). Something as simple as having separate sections for color and black and white plates with differing numbering schemas can be confusing for those unaccustomed to art books.

Not only is it helpful to know that different types of image media exist (photographs, negatives/film, drawings/diagrams, 35 mm slides, lantern slides, books/articles), but it is also essential that the differences between such media be accounted for, as well as ways those differences may themselves affect the resulting quality of the image a student employee may be looking at or manipulating.

Similarly, how does source media and its handling and life cycle affect digital image creation, editing, and evaluation?[12] Working with printed images involves an attention to the quality of the halftone, the fragility and conservation of the paper, the texture of the paper, printing errors, and the tightness of a given binding. Film may exhibit color deterioration, surface damage, mold, or in the case of 35mm slides, varying editorial choices with masking and mounting. How does viewing source media affect digital image creation, editing, and evaluation? The simple experience of viewing the source material is inherently different than viewing the digital surrogate on the screen—how might this variance be accounted for?[13]

What is a surrogate image? What is the difference between a work of art and an image of that work of art? Why is it important to understand this difference? How can we understand the value and the unique life of the surrogate image? In reference to photography, Joanna Sassoon writes, "Likewise, the digitising process can no longer be seen as merely changing the physical state of a photograph from the material to the pixel. If a photograph can be seen as a more complex object than simply an image, digitising can be seen as more than simply a transformation of state, or a transliteration of tones. The process of digitising involves a more complex cultural process of translation — or a change between forms of representation."[14]

Understanding Art Images

While all of the above factors may contribute heavily to the perception, reconstitution, and manipulation of images, what a student employee may need to understand art images is much more an intangible web of concerns. Many of the considerations below will be affected by institutional policies, ethics, and art historical theory or methodology. For example, should an image be adjusted to look like the current work of art as it appears today, to look like the work of art as it appeared at an earlier moment in time before subsequent damage or changes occurred, or to match the image's source material as it currently appears or once appeared?[15] Further, should adjustments prioritize the attempt to create consistency across a collection, to enhance the look of images overall, or to maintain a sense of the original's materiality?[16] In creating a practical guide, issues of institutional practice and varying art theory and ethics may be the most difficult to navigate. I suggest that any such guide focus on presenting the stakes of the questions rather than definitive answers. Students should learn why doing a task one way or another matters, and they should take that moment to stop and wonder if their initial course of action is the right one for their institution and workflow.

What about the art objects—how do we classify them? What is the medium? What types of media exist? How is the depiction of the art object presented? What portion of the art object is depicted, or to what extent (whole/detail, specificity of the view)? While some designations may seem straightforward—this image is a depiction of a painting in a specific museum—others may be far more confusing—this is a reproduction of a film still documenting a performance art piece.

Moreover, to what extent are images depicting the same work of art the "same thing"? In the case of evaluating images for inclusion in an online image database, what differences matter or under what circumstances do they matter? What moment in time or condition of the art object does the image depict? Are multiple images of the same object depicting the object at the same moment in time or in the same condition? Was the object photographed under varying lighting conditions? What is the difference between a 1940s image of a cathedral façade and a photograph of the same façade taken last year? Does one image depict restorations or the removal of restorations? Has one impression of the same print been hand colored and another not? Does the image depict additional evidence, such as an X-ray?

Are multiple images that appear similar depicting the same art object? Those not trained in formal analysis may not be able to see minute differences or understand why it matters if images are similar but slightly different. Understanding the idea that all images depicting a particular subject have unique value, but that the same images may also have value as a comparative group, is a core concept that may not be automatic to all viewers. While this

particular issue could be seen as simply one of close looking, it also touches on certain practices in the visual arts. Some images may look similar but be different, others may be copies, reverse copies, negatives of a corresponding photographic print, casts of famous sculptures, or different impressions, states, and editions of the same print. It is important that students do not flip reverse copies that are correctly oriented but may appear to be "backwards," that they do not equate a seventeenth-century plaster cast with imagined restorations to the partially lost ancient marble original, or that they do not discount an almost identical looking print because it has only a minute change to its text or imagery.

Figure 2. Image created by author for her "Art Instead of Just Images: Training Students to See Beyond the Screen" poster. Manuscript folio depicted: f. 178v, Freising Gospels, W.4. Image available at the Digital Walters with a Creative Commons Attribution-ShareAlike 3.0 Unported license.

How can digital image manipulation damage both the integrity of the digital image and the integrity of the representation of the art object? Is perceived noise part of an art object (scratches on a nineteenth-century photograph)? Is perceived noise part of an image (hair or mold scanned from the glass of a 35 mm slide)? How does color affect artistic expression? To what extent can colors match between media (printed materials vs. pixels vs. film)? To what extent should a binding be removed from an image or part of the work of art be "reconstructed" in the case of a double page spread with detailed imagery in the binding?

Here we begin to bridge the gap between understanding an image's source and the context and intended purpose of the surrogate image. What is the focus of the source image? Should the focus change? How does the original focus affect orientation and cropping? How does the intended use of the digital image affect editing choices (e.g., for use in a PowerPoint in a class)? I would also argue that the context of a reproduction of an art image in its source media matters. For example, a coffee table book geared towards nonacademic audiences about the medieval world may show a detail from an illuminated manuscript page quite differently than a monograph on that manuscript might depict a detail of the same folio. Choices in cropping can completely change the effect and experience of an image.

Conclusion

Many of the above questions do not have one or two answers or concrete answers. We can also easily ask what constitutes accuracy or value in the creation of a surrogate image.[17] To what extent can we or should we preserve something of the original work of art in the manipulation of a digital image?[18] How much can a student employee retain and how much should we teach them? Will these skills have real value in their futures, and how could that possibly be measured? These questions do not have simple, if any, answers. In fact, I think the final conceptual blossoming, the crux of this entire project, is that these questions do not have definitive answers, but that it is the asking of them that makes all the difference. Those of us with extensive training in visual literacy and the arts know to ask them—we ask ourselves questions like these every day—but do we ask them all? Do our students ask them? What other questions should we be asking?

This project is about an awareness of the considerations one should take in visual resources work and the lack of a guide, toolkit, or other sufficient literature in order to do so. In continuing this project, I would like to identify concrete approaches for training non-humanities student employees to look at images of art. Those of us who train student employees certainly have some sort of existing guide for training students, be it an oral tradition memorized years ago, a binder with assorted notes, or a more substantial document of best practices. We all may have individually hammered out a method that works for us and our institution locally, but surely, many of us also must be fumbling around in the dark as I have found myself, wondering if there could not be a better way to do this training. These issues are relevant to us in more and new ways. Just as I discovered new avenues for student work with our recent transition, our position scopes are changing, and we are dealing with more and more types of interdisciplinary images that carry their own stories. I think it is essential that we, as visual resources professionals, and our students, are able to read the stories of those images and systematically apply the same principles to whatever task is at hand.

It is my hope to continue work on shaping a practical guide to move forward. While I am still considering the format possibilities and am continuing to do research and various types of explorations on this topic, I see myself constantly rethinking my training interactions with my students. To me, that is the most important part of this project. Instead of just thinking to myself, "How can I quickly explain it so this task can be completed?" I am thinking, "How can I explain this task so that the student will learn and gain something from completing this task?" In the end, I would wager work is better for us all when we learn something new every day.

Endnotes

[1] A full bibliography and the handouts for this poster session are available from the author.

[2] Felten, Peter. "Visual Literacy," *Change: The Magazine of Higher Education* 40.6 (November 2008): 60.

[3] Perrault, Anna H. and Elizabeth S. Aversa, *Information Resources in the Humanities and the Arts*, 6th ed. (Santa Barbara, California: Libraries Unlimited, 2013), 6.

[4] Although this interaction stuck in my mind, I regret that I cannot remember the name or institution of this attendee to whom I am deeply indebted.

[5] With the notable exception of Mark Mathew Braunstein, "PHOTOSHOP CS 6 for ARTworks: Tools & Techniques for Enhancing Images of Paintings, Sculptures, Drawings, Prints & Architecture." Spring 2013. Available at http://vrawebor.ipower.com/resources/diag/Braunstein-photoshop2013.pdf.

[6] It would be an omission not to mention the literature that does exist for the digitization of photographs, such as Paul Conway's many pieces addressing digital surrogacy, as well as the growing interest in digital humanities work on the creation of digital surrogates of medieval manuscripts. For two examples of Conway's work, see Paul Conway, "Building Meaning in Digitized Photographs," Journal of the Chicago Colloquium on Digital Humanities and Computer Science, 1.1 (2009): 1-18 and Paul Conway, "Digital Transformations and the Archival Nature of Surrogates," Archival Science 15.1 (2015): 51-69. As for medieval manuscripts, similar interests to my own are echoed succinctly in the course description for "The Medieval Manuscript in the Twenty-First Century," taught by Will Noel and Dot Porter from July 10-15, 2016 in Philadelphia as part of the Rare Book School: "Students in the course will consider four issues relating to using medieval manuscripts in a digital world. The first issue is theoretical, considering the relationship between medieval manuscripts and their digital counterparts, and questioning the notion of digital surrogacy. What does 'digital surrogacy' mean and how might it affect our consideration of the physical objects represented through the surrogate? The second issue is the practical one of imbuing best practices when creating digital assets out of medieval manuscripts. If we are to digitize manuscripts, how can we ensure that those digital versions are the best they can be? And again: what does that mean?" See also Sian Echard, "Coda. The Ghost in the Machine: Digital Avatars of Medieval Manuscripts," in *Printing the Middle Ages* (Philadelphia: University of Pennsylvania Press, 2008), 198–216. Further, for resources for the color correction of photographic materials, see Drew Krewer, "Digitizing Color Photographic Materials: A Resource List," *VRA Bulletin* 40.1 (2014): Article 3. Available at: http://online.vraweb.org/vrab/vol40/iss1/3.

[7] Molly J. Schoen, "Teaching Visual Literacy Skills in a One-Shot Session," *VRA Bulletin* 41.1 (2015): Article 6. Available at http://online.vraweb.org/vrab/vol41/iss1/6.

[8] It became immediately apparent that this project would benefit significantly from a careful study of the "ACRL Visual Literacy Competency Standards for Higher Education" with a special focus on Standards 1 and 4. Directly relevant to my purposes, in "The Visual Literacy White Paper," Bamford writes, "Visual literacy includes, but should not be limited to, graphic composition of images (eg shapes, lines, colours, etc). It can also include things such as camera placement, editing and juxtaposition and point of view (eg low angle will make someone appear more imposing). This can also have other impacts such as to change your sympathy towards a character or raise tension. An image might also involve manipulation of proximity and placement (eg close-ups or zoom)" (Bamford, 3). Further, Bamford's "Questions you might ask to develop an understanding of visual semantics" directly informs many of the considerations suggested in this project (Bamford, 4).

[9] These and other art librarianship guides serve as helpful resources for understanding art publications and for understanding surrogate images. Although referring to 35 mm slides before the era of the digital image, Pacey's point that "It is often the case that the projected image of a slide of a work of art flatters the original; a painting on canvas can hardly be expected to be luminous in quite the same way" speaks volumes to both digital image surrogacy and to possible considerations when manipulating digital images for brightness or color (Pacey, *Art Library Manual*, 272).

[10] Taylor's work describes why different material elements matter for expression and can be applied to the manipulation of surrogate art images:

> We have used a number of terms to describe the material elements which seemed inseparable from our experience: color, both as establishing a general key and as setting up a relationship of parts; line, both as creating a sense of structure and as embodying movement and character; light and dark, which created expressive forms and patterns at the same time it suggested the character of volumes through light and shade; the sense of volume itself and what might be called mass as contrasted with space; the concept of the plane, which was necessary in discussing the organization of space, both in depth and in a two-dimensional pattern. Towering over all of these individual elements was the way they were put together, the composition, how part related to part and to the whole: composition not as an arbitrary scheme of

organization, but as a dominant contributor to the expressive content of the painting. (Taylor, *Learning to Look*, 55)

[11] All of the literature mentioned in this section delves into the question of image surrogacy and the surrogate's relationship to the original. Additionally, as in this passage from Frey and Reilly, these works address the complexities of digitizing photographic works: "There is a well-known truth among photographers that copy photography—taking a picture of a picture—is technically more difficult than making a portrait or a landscape. It is all too easy in copy work to alter the contrast or lose the fine details of the original. As cultural institutions begin to make digital copies of their photograph collections, they are learning a variant of the old truth: it is as difficult to make good digital copies as good photographic ones." (Frey and Reilly, *Digital Imaging for Photographic Collections*, vi)

[12] This paper does not address born digital images or the many variances that can occur once an image is digitized, such as monitor calibration, working color spaces, file format, software, etc.

[13] Sassoon notes when comparing photographs to their digital surrogates that "using a lupe to magnify detail in an original photograph, for instance, physically draws the viewer into the core materiality of the object to interact with the larger detail under view, while almost touching the object's surface. Enlarging a digital image involves using a keyboard or mouse while maintaining physical distance from the screen image. Thus, an intermediate technology used to view a digital surrogate is unable to replicate the interactive nature and process of viewing experienced with a material object." (Sassoon, "Photographic Materiality," 192) I would argue this phenomenon can also describe the experience of editing digital images created through copy work.

[14] Sassoon, "Photographic Materiality," 188.

[15] See Frey and Reilly, *Digital Imaging for Photographic Collections*, 28-29, for various "rendering intents that apply while digitizing original artwork."

[16] Conway discusses four sets of digitization guidelines for institutions digitizing photographs in their collections. He notes that "the primary purpose of digitization guidelines is to help create a procedural bridge for a targeted community between objective technical processes and the subjective judgments that users make throughout a project workflow," (Conway "Building Meaning," 10-11) While these resources are extremely helpful, they still do not address many of the concerns those working with digital surrogates created from an intermediary surrogate, such as a book or a slide, may face.

[17] Conway writes, "Digitizers who make these [post-scan] enhancements intend to improve the visual legibility and the visual usability of the digital surrogate. But post-scan enhancements add a layer of intentional mediation between artifact and end user that may have unintended implications for their ability to make an intellectual connection between the surrogate and the original object." (Conway "Building Meaning," 15-16)

[18] Of digitizing photographs, Sassoon writes, "Where once materiality and meaning were bound up in a complex, synergistic and symbiotic relationship, the resultant digital object is an ephemeral ghost whose materiality is at best intangible." (Sassoon, "Photographic Materiality," 199)